

REMARKS/ARGUMENTS

**Claim Status**

Claims 1-36, 39 and 40-42 are pending. Claim 1 is amended for clarity. Support can be found in the claim as previously presented. Claims 43-45 are added. New claim 43 finds support in the specification; [0048]. New claim 44 finds support in the specification; [0058]. New claim 45 finds support in the specification; [0059]. No new matter has been added.

**Claim Rejections - 35 U.S.C. 103(a)**

Claims 1, 4, 10, 11, 16, 17, 21-24, 28-32 and 42 are rejected under 35 U.S.C. 103(a) as being obvious over Nolley (US 4,124,486). Claims 1-3, 5-9, 16, 17, 19-36, and 39-42 are rejected under 35 U.S.C. 103(a) as being obvious over Taylor (US 5,124,026) as evidenced by Nolley, Coleman (US 3,816,295), and Yan (US 4,334,976). Applicants traverse these rejections.

Applicants thank Examiner Boyer for the indication of allowable subject matter of claims 12-15 and 18.

The present invention discloses that part of the stream comprising asphaltenes coming from the deasphalting is subjected to a treatment section with a solvent for the separation of the product in a solid phase and a liquid phase, from which the solid product can then be removed. The treatment section comprises a step of de-oiling wherein a solvent is added to the stream comprising the asphaltenes, and the solvent brings into the liquid phase a majority of the organic compounds, leaving in solid phase the metallic sulfurs, the coke, and the carbonaceous residues. Subsequently, the solid phase is separated from the liquid phase, from which the solvent is then removed (*See* Specification; pg. 9, line 15 – 25; pg. 10, line 21 - pg. 11, line 9; and pg. 12, line 6 – 14). The solid fraction may then be either disposed of or

selectively treated to recover the transition metal or metals contained in the transition catalyst in order to provide for optimum recycling of the stream with in transition metal to the hydrotreatment reactor (pg. 11, line 21 – pg. 12, line 5).

This composite treatment including the treatment section comprising the deoiling step and separating step has been discovered to provide the following advantages:

- The entity of the flushing fraction is greatly reduced;
- A large part of the flushing fraction is upgraded to fuel oil by separating the metals and coke;
- The fraction of fresh catalyst to be added to the feedstock to the primary hydrotreatment is reduced, as at least part of the molybdenum extracted from the selective recovery treatment is recycled (*See Specification*, pg. 12, line 15 – 14).

Nolley does not disclose the claimed treatment section wherein a solid fraction and a liquid fraction are separated after a deoiling step. Nolley discloses a separation step consisting of a **gas-liquid** separation (step (30); *see* the “solvent flash” in figure 1 and “solvent flash zone” on column 10, line 11) wherein the liquid mixture feed is partially evaporated. The treatment of the stream (29) through the “solvent flash” (30) in Nolley is the removal of the solvent used for **deasphalting**, conducted in the **deasphalting column** (17). Specifically, the solvent 15 in the deasphalting step is added to the stream in the next deasphalting column (17). Applicants emphasize that the stream (31) of Nolley comprising asphaltenes deprived of the deasphalting solvent, is comparable to stream (3) leaving the DSA step of figure 1 of the present application. Analogously, the stream (2) (DAO) of the present application leaving the deasphalting solvent corresponds to the stream (45) of Nolley, separated from the deasphalting solvent. However, the removal of the deasphalting solvent disclosed in Nolley is not equivalent to the “separating” step in the claimed treatment

section. In turn, the Office has failed to establish where in Nolley a separation step is conducted after a de-oiling step, wherein a liquid phase is separated from a solid phase, and thus has failed to establish a *prima facie* case of obviousness. Applicants request withdrawal of the rejection over Nolley.

With respect to Taylor, in col. 11, lines 12-16 it can be observed that the asphaltenes (94) coming from the first separator (130) of the deasphalting unit (SEU) are conveyed, after recovery of the solvent, to the "Solid Fuels" area. Applicants emphasize that only one asphaltic stream comes from the first separator of the deasphalting unit (*see* Figure 3) of which one part (94) is sent to the "Solid Fuels" (96) area and the other part (118) is sent to the coking unit. Therefore, there is no disclosure or suggestion that they are phase-separated.

Applicants submit that a finding of a deoiling process in Taylor is without merit and nothing more than "*a posteriori*" argumentation which is largely based on Applicants' invention rather than the state of the art existing at the time of their invention. The Office is reminded that "impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art" (MPEP 2142; see also MPEP 2145(X)(A)). There is simply nothing in Taylor that describes or suggests a treatment process comprising a deoiling step and a separating step to obtain a solid fraction and a liquid fraction. Accordingly, Taylor is also insufficient to establish a *prima facie* case of obviousness.

Applicants note that the secondary references are insufficient to remedy the deficiencies of Taylor. Specifically, Nolley also fails to disclose the claimed deoiling and separating processes as noted above, and neither do Coleman or Yan. Applicants request withdrawal of the rejections over Taylor both alone and in combination with the secondary references.

**Conclusion**

For the reasons discussed above, Applicants submit that all now-pending claims are in condition for allowance. Applicants respectfully request the withdrawal of the rejections and passage of this case to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

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